Status of the golden jackal as an agricultural pest in Bangladesh

Joe E. Brooks, with M. Emdadul Haque and colleagues, discusses the jackal's role in the agroecosystem

The golden jackal is perceived by farmers in Bangladesh as a primary pest of agricultural crops and domestic livestock. Very few farmers take any actions to reduce jackal attack on crops or livestock other than guarding their fields at night during the ripening crop stages. Rarely have the role and importance of the jackal as a small mammal predator in the agroecosystem in Bangladesh been studied. Until studies are completed to clarify these issues, lethal methods of jackal management should not be attempted.

Golden jackals (*Canis aureus* L.) range over a vast area of northern Africa and southern Asia, stretching from Morocco in the west to Thailand in the east. Jackals are medium-sized, shaggy-coated, brown-grey animals, standing ~40 cm at the shoulder and weighing 7–12 kg as adults. Jackals are reputed to be wily, resourceful and intelligent animals, wary of, yet well-conditioned to, the presence of humans. They are social animals, known to hunt in small, loosely formed packs (Golani and Keller, 1975) and range over an area of several square kilometres in their nightly foraging (van Lawick-Goodall and van Lawick-Goodall, 1971).

Although classified as carnivores, golden jackals actually are omnivores and successful nocturnal scavengers. It is their omnivorous food habits that make them pests of field crops and livestock. Numerous studies of their diet illustrate that they feed on watermelon, pumpkin, ripening corn and many types of fruits in season (Bodenheimer, 1935; Hassinger, 1973; Osborn and Helmy, 1980). They are known to prey upon small goats and poultry (Howells, 1956; Lekagul and McNeely, 1977). At the same time, other studies have shown that they are effective predators upon small rodents, birds and reptiles (Prakash, 1959; Schaller, 1967, 1970; Khan and Beg, 1986; Poché *et al.*, 1987; Sultana and Jaeger, 1989).

Farmers usually have an intimate knowledge of the pest animals that threaten their crops, particularly the smaller and larger vertebrate pests. Farmers have to contend with many of these pests every year. One of the important vertebrate pests of agriculture in Bangladesh is the golden jackal. In order to learn how farmers in Bangladesh perceived the jackal as a pest of crops and livestock, in 1984 we interviewed >1100 farmers in the country.

We conducted interviews with farmers in 11 districts that represented all of the major physiographical and geographical areas of the country. Districts were preselected, but within each district, four upazillas (an administrative/political subdivision) and villages were picked at random. Each upazilla was visited and five farmers were interviewed at each of five randomly selected villages, giving a total of ~100 interviews in each district.

Survey findings

Of the 1110 farmers interviewed, 760 (68%) reported having problems with jackals: 286 (26%) reported damage to food crops and 693 (62%) had lost domestic animals to jackal attack. Sugar-cane was the crop most frequently reported as damaged, followed by melons, pineapple, jackfruit and maize. Minor damage was reported to groundnut, cucumber, sweet potato, potatoes and gourds. Losses of domestic animals were more serious than the crop losses. Chickens, apparently, are most frequently killed and eaten by jackals (589 reports of 4223 chickens killed during the previous year). Goats, both kids and adults, were the next most common prey (231 reports of 521 animals killed). Ducks, which are not as numerous as chickens on Bangladesh farms, were killed less frequently (162 reports of 632 ducks killed). There were a few reports of predation on pigs, calves, sheep, pigeons and freshwater prawns.

Jackals were reported to have killed chickens and goats in every month of the year. There was an increase in reported predatory activity in May and June, reaching a peak in July (*Figure 1*). This peak occurred during the seasonal flood period when about one-third of the country is under water and jackals would be concentrated on higher ground.

Jackal control

Only 41 farmers reported taking actions to control jackals. The method most often reported was chasing and beating with sticks.

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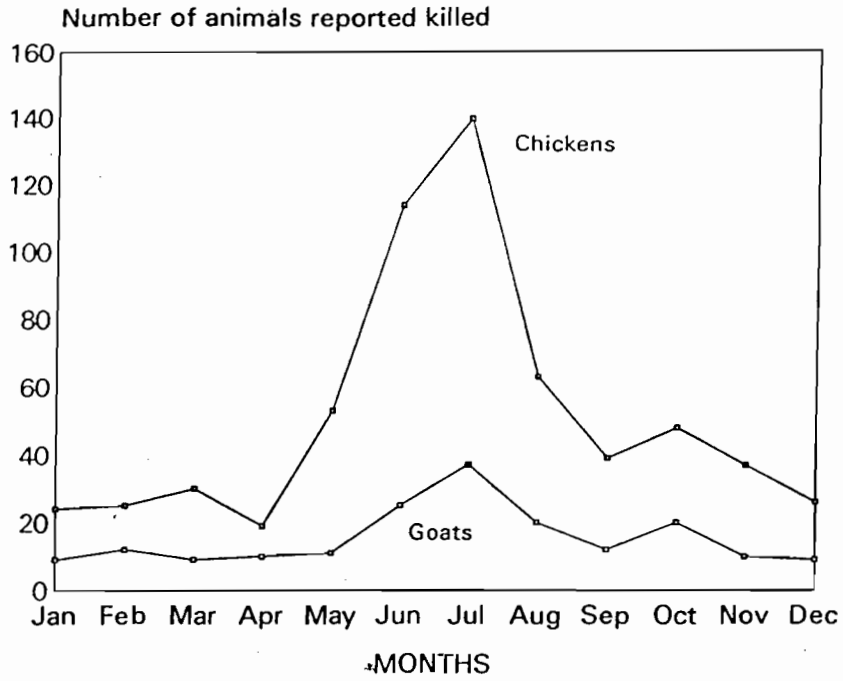

Figure 1. Reported predatory activity of the golden jackal in 11 districts of Bangladesh, 1984

This was done whenever jackals were discovered in their daytime hiding places or when daytime attacks by jackals on domestic animals were witnessed by people and a crowd was attracted. Other methods, such as trapping, poisoning, digging or smoking of dens, and fencing, were used infrequently. One ingenious farmer reported rigging electric wires with which he successfully electrocuted several jackals. Apart from lethal control methods, farmers tried to reduce jackal damage to crops by standing night guard in their fields. These methods generally were reported as successful in melon fields, but not in sugar-cane or maize fields, where detecting jackals at night was difficult because of the crop height.

Pest status

From the farmers' perspective, there is little doubt that the golden jackal is a serious agricultural pest in Bangladesh. The species is widely distributed throughout the country and occurs in every district and upazilla where farmers were interviewed.

Losses of domestic animals, as well as valuable crops, pose a considerable food drain to the average farmer. These losses of potential energy and protein sources in a diet-poor country can be ill afforded. Predation on domestic animals increases as the monsoon rains begin and flood waters rise to a peak in July. Part of the increased predatory activity probably relates to flooding, which may force jackals into dense concentrations on higher ground and into closer contact with humans and their settlements. Another factor could be a shortage of seasonal foods, such as insects and rodents, again related to floods.

Obviously, golden jackals in Bangladesh are perceived as important agricultural pests by Bangladeshi farmers. However, the agricultural and economic losses reported by the farmers must be balanced against the benefits that jackals, as predators of small mammals, may bring to the agro-ecosystem. Jackals clearly catch and eat large numbers of rodents, the very rodents that cause crop damage and household stored-food losses. Until the jackals' role in the agro-ecosystem is studied scientifically and better understood, we do not believe that lethal control of jackals, other than those methods already employed, are justified. On the other hand, better protection of domestic animals, especially chickens, from jackal attack is certainly warranted; this should prove to be economically feasible.

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